Intellectual Capital and the Financial Performance of Listed Agricultural Firms in Nigeria: The Moderating Role of Staff Training

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ABSTRACT

The new production system is mainly driven by technology, knowledge, expertise and relations with stakeholders which may collectively be described as Intellectual Capital. Intellectual capital of an organization is seen as assets to improving the financial performance. Against this backdrop, this paper examined the impact of intellectual capital on financial performance of listed agricultural firm in Nigeria; the moderating role of staff training. The study sampled thirteen listed agricultural firms from 2015 to 2022. The ordinary least squares was employed. The result revealed that staff training has a moderating effect on the relationship between intellectual capital and financial performance of listed agricultural firms in Nigeria. It was concluded and recommended that firms should carry out staff training regularly.

INTRODUCTION

Prior to this present dispensation, the two factors of production - labor and capital were considered to be the most valuable assets in economics. But now, the fast expansion of science, technology and finally the globalization altered the pattern and structure of the production system. The new production system is mainly driven by technology, knowledge, expertise and relations with stakeholders which may collectively be described as Intellectual Capital. Also, in the last 2 decades, a drastic transition of economies has emerged, from a traditional-driven approach to a more knowledge-intensive driven approach (Ali & Anwar, 2021; Vidyarthi, 2018).

The change is in line with the catch-up of economies with Industrial Revolution 4.0 with particular insights into competitiveness and value creation (Adeosun et al., 2021; Ofori-Sasu et al., 2019). Thereafter, knowledge became a vital tool for achieving a sustained competitive advantage for the economies and firms domiciled in such economies (Nitkiewicz et al., 2014). In this modern age, this composition of knowledgeable assets in a firm has moved away from mere acquisition of highly skilled employees to more encompassing components such as structural capability development, trade secret, patent and trademarks, customer retentiveness, social responsibilities and a host of other intangible assets (Isola et al., 2019; Sardo and Serrasqueiro, 2019).

In the new economic system, which is popularly known as the knowledge economy, intangible or intellectual assets have eventually been recognized as the prominent resources (Ahangar, 2011). Companies like software, finance, pharmaceutical; banking, hotel etc. depend to a considerable extent on the intellectual capital for earning revenues.

Intellectual capital can be defined as the intangible assets which are not listed explicitly on a firm's statement of financial position, but positively impact the performance of it, thereby revealing the relationship between employees, ideas, and information and measure what is not measured (Edvinsson, 1997). It is common knowledge that statement of financial position do not attempt to provide information on the actual value of an enterprise; instead, they are prepared for reporting purposes. Moreover, the relationship between the data obtained from financial reports (which are produced in line with the traditional accounting systems) and the value of an enterprise has weakened. In addition, traditional accounting systems fail to reflect intangible assets creating value in enterprises (Canibao, Garcia-Ayuso, & Sanchez, 2000; Lhaopadchan, 2010).

IC is a concept that deals with intangible asset and resources possessed either by the organization or its employees. One basic characteristic of these resources is that it is intangible but has been observed by researchers and expert to impact positively on organizations performance and improve their competitive strength. Corroborating this assertion, Nejadirani, Namvar, Rasouli and Yadegari (2012) opine that IC has no evident or physical nature and is an intangible asset achieved through employing properties related to human resources, organizational performance, and external relationships. These characteristics are made clear in the various definitions of IC. Sofrain, Tayles and Pike (2008) defines it as the possession of knowledge and experience, professional knowledge and skill, goal relationships, and technological capacities, whose synergic effect can boost firm's performance. It is the combined intangible assets which enable the company to function (Brooking, 1997cited in Ismail & Karem, 2011). It is a property, which measures an organization's wealth creation capacity (Nejadirani, Namvar, Rasouli &Yadegari, 2012).

Business especially service firms have moved on from capital dependent to employee skill set and ability dependent. This is also evident in listed firm in the Nigeria stock exchange (Musa & Aifuwa, 2020), most especially, the financial firms. This is possibly the reason they go for the very best while recruiting irrespective of the discipline of the worker, likewise the listed agricultural firms. Agricultural business in Nigeria have received a significant boost following the different aptitude tests, oral and written interviews that are conducted all in a bid to ascertain to a greater extent the intellectual quotient of the prospective employee. This is not unconnected to the fact that they have seen that their performance and ability to compete favourably in the market place is dependent on the level of skills, knowledge and ability of the employees. Sullivan (2000) states that the business environment has already progressed from the industrial age to the information age were a firm's resources, particularly intangible ones, are more likely to contribute to the firm's attaining and sustaining superior performance. Colombo and Grilli (2005) opine that companies with greater human capital are likely to have better entrepreneurial judgment. Similarly, Lichtenstein and Brush (2001) posit that intangible assets are more important and critical than tangible assets in such a decisive period of the life of a business.

The main objectives of this study is to examine the impact of intellectual capital on the growth of listed agricultural firms while the specific objectives is to investigate the moderating effect of staff training on the nexus between intellectual capital and financial performance of listed agricultural firms in Nigeria.

Statement of the Problem
In the time past, there is being zero recognition on the role of the human resources in an organization. The growing importance of human capital to the economic growth and development of business entities at both microeconomic and macroeconomic levels has necessitated the need for a shift of investment decisions to reflect this reality (Inyanda, 2018)

Employees are often forgotten as valuable assets since they are often only represented by wages and salaries including other related employees' expenses. A shift of importance to the knowledge-based economy has encouraged companies to increase the quality of their employees through training and development as drivers of intellectual capital in response to market transformation. Notwithstanding, this scenario trigger's this study into examining the impact of intellectual capital on the financial performance of listed Nigeria Agricultural companies in order to ascertain how positively or negatively intellectual impacted on the financial performance of corporate undertaking on the industry under study.

The agricultural sector in Nigeria has received less attention since the discovery of oil. Other sectors of the economy have received considerable attention compared to the agricultural sector which was the mainstay of the economy prior to the discovery of oil in Nigeria. In literature, previous studies such as those by Sardo and Serrasqueiro (2017), Xu and Wang (2018), Buallay (2019), Rahayu and Ramadhanti (2019), Barbosa et al. (2016), Bontis et al. (2018), Ozkan et al. (2017) and Scafarto et al. (2016) have established substantial affiliation between components of Intellectual Capital as well as

organisational performance in various sectors such as banks, tourism, health, manufacturing, social cooperative enterprise, automobile industry, public companies, higher education, social cooperatives etc. While there are few studies on the insurance sector in this context, scholars such as Asare et al. (2017) and Oppong et al. (2019) have conducted studies on Intellectual Capital and insurance sector performance in some African countries.

However, to the best of the researcher's knowledge, no study has examined the impact of intellectual capital on financial performance of listed agricultural firms in Nigeria. More so, no study have critically examined moderating role of staff training on the relationship between intellectual capital components on financial performance of listed agricultural firms in Nigeria. This study tends to fill the identified gap and add to existing literature on the nexus between intellectual capital and financial performance of listed agricultural firms in Nigeria.

Literature Review
Financial Performance
The concept of performance has become a great challenge across the world in recent times. Although several research works has been carried out on performance related issues as it affects organizations or firms but its definition posed a great challenge to researchers. Roger and Wright (1998) assert that performance is probably the most widely used dependent variable in organizational research today, yet it remains one of the most vague and loosely defined constructs. They further confirmed that the struggle to establish a meaning for performance has been ongoing for many years and it is not limited to a particular domain. Similarly, Gavrea, Ilies and Stegerean (2011), confirmed the fact that defining firm performance has been very challenging to researchers because of its many meanings. Watson (2007) defines performance as how well a company uses its recourses from its primary mode of business and generates revenues. Performance can also be defined as the accomplishment of specified business objectives measured against known standards, completeness and cost (Davis & Cobb, 2010). Generally, performance relates to the realization of organisational goals and objectives with minimum resources.

Lee, Chen & Lee (2013) suggest that the operational definition of firm performance is that it is an indicator of the overall entity competitiveness, and it is also the degree of the achievement level of an enterprise's strategic objectives. An appropriate firm performance assessment affords its manager the understanding of the status of the organization. Company's financial performance is the natural consequence of operational performance, understood as the final result of all corporate efforts. If the other dimensions related to performance (productivity, efficiency, effectiveness) shows measurement difficulties, these disappear in the case of financial performance, which is a global measure of all the others. Much of the empirical studies that examine financial performance are limited to an analysis based on accounting information because it can be obtained and compared easily. Financial performance is a measure of how well a company uses the invested capital to generate income. This term is usually utilized as a measure of the overall health of the company for a certain period of time, and can be used to compare similar entities in the same industry or to compare industries and sectors. Generally speaking there are currently two categories of methods for measuring financial performance: methods based on the analysis of accounting information and methods based on market value.

Performance analysis based on accounting measures uses the annual financial statements as source of information. On this basis there are calculated series of financial ratios covering several quantitative and qualitative aspects of performance: profitability, liquidity, financial structure (debt) and turnover. It is often said that the most important outcome of the activity is, in terms of company owners, the profit. In conclusion, financial performance is usually what matters most, primarily for the company owners (directly) and secondly for all stakeholders (indirectly).

Intellectual Capital
Different scholars have defined the concept of intellectual capital. Marr (2005) Intellectual capital is defined as a group of knowledge assets and is considered among the features of that organization and significantly leads to improvement of competitive situation of organization through increase of added value for key stakeholders of organization. Edvinsson and Sullivan (1996) defined IC as "knowledge that can be converted into value". Stewart (1997) defined IC as "intellectual material (e.g., knowledge, information, intellectual property, and experience) that can be used to create wealth". From the perspective of financial accounting, some researchers (Goebel, 2015; Dženopoljac et al., 2016; Forte et al., 2017; Jordão & de Almeida, 2017; Anghel et al., 2018) define IC in terms of its intangible asset nature, and consider that IC is the difference between a firm's market value and its accounting.

Intellectual capital consists of different sub classes of intangibles (human capital, structural capital,

relational capital (William & Kelechi, 2021). Intellectual capital is the result of human knowledge. It has an important role in the strategy execution to gain a competitive advantage in business competition and to improve performance. Value creation, however, is the product of interaction between the different classes of intangibles (Sanchez, Chaminade, &Olea, 2000). The word intellectual capital should not be taken too literally. Intellectual capital is a metaphor; a comparison between two seemingly unrelated subjects - because it describes the importance of all the intangible resources by comparing the ability to use the human mind (intellectual) with financial wealth (capital).

It is therefore not only about the people, their knowledge and skills, but also about organizational processes and relationships with the customers. The word capital refers to financial wealth. However, the essence of the phrase intellectual capital refers almost to the opposite. Intellectual capital goes beyond the traditional accounting principles. It is no longer relevant whether resources can be expressed in monetary terms or not.

Human Capital Efficiency

Ahangar (2011) asserted that human capital is recognized as the largest and the most important intangible asset in an organization which ultimately provides the goods and/or services that customers require or the solutions to their problems which includes the collective knowledge, competency, experience, skills and talents of people within an organization

Arbab and Abbasi (2010) define human capital as a set of tacit knowledge and explicit knowledge of employees which is considered value for the organization. It could also be defined as a combination of knowledge, skills, initiative and ability of employees for duties. According to Subramaniam and Youndt (2005) human capital is the knowledge that employees possess as well as their ability to generate it, which is useful for the firm, and includes individual values and attitudes, aptitudes, and competencies. It reflects skill, expertise, and knowledge level of an organization's employees (Williams & Kelechi, 2021). Human capital is important as the foundational source of innovation, strategic renewal of a company and the company can thus realize and create value in the knowledge-based economy

Human capital efficiency (HCE) as a component of the Value Added Intellectual Coefficient (VAIC) model constitutes the knowledge of employees and their skills which does not remain at the organization after the employee leaves**.** Knowledge, which consists of technical knowledge and academic knowledge, is obtained mainly through school education and is thus theoretical. Skills, the employee's capability of accomplishing practical assignments, are obtained primarily through practice, especially the tacit skills that cannot be literally expressed, even though it can also be developed through school education (Williams & Kelechi, 2021).

Structural Capital Efficiency

Cabrita and Bontis (2018) defined structural capital as an important strategic resource which encompasses non-human assets, such as information system, routine, procedures and databases. Joshi, et al (2010) see structural capital as developed knowledge through an organization, and is inseparable from the firm. It can involve organizational structures, procedures, routine, systems, hardware, databases and organizational cultures.

William and Kelechi (2021) argue structural capital would improve employee capability in an organization. Stewart and Ruckschel (2018) noted that structural capital could build a platform which enables employees to move towards innovation performance continuously. Sveiby (2017) noted structural capital falls into patents, concepts, models, computer and administrative systems within an organization.

Moreover, a proper integration of organizations physical resources and IC (including structural capital) can determine both the survival and the performance sustainability of an entity on a long-term basis, which managed to fulfill the expectations of its stakeholders; shareholders, creditors, suppliers, customers, communities, manpower including the whole human race present and future and the global community. IC consisting of human, structural, social and relational capital plays an important part in ensuring the success of organizations during the current century (Roos, Pike and Fernstrom, 2012).

Capital Employed Efficiency

Pulic (1998) sees capital employed efficiency (CEE) as all necessary financial funds and physical capital, which is an important element in the VAIC model. Capital employed can increase return on asset because it contributes to the ability to generate revenue. Efficient capital employed will drive revenue and affect increased return on asset.

Prior studies (Nimtrakoon, 2015; Sidharta and Affandi, 2016; Ozkan et al., 2017; Ousama and Fatima, 2015; Nawaz and Haniffa, 2017; Nadeem et al., 2018a; Bayraktaroglu et al., 2019; Smriti and Das, 2018; Wang et al., 2018; Kweh et al., 2019) proved that capital employed has an effect on profitability

measured by return on asset and return on equity. It has also an effect on asset turnover and price to book value (Nadeem et al., 2018). Further studies of Chen et al. (2005) found CEE to be positive and significant with ROA. A study on Turkish banks by Ozkan et al. (2017) found a positive association between CEE and bank performance. Nadeem et al. (2017) supported this positive and significant correlation between physical, financial capital and profitability, productivity, and market valuation of the firm. Similarly, Oppong and Pattanayak (2019) found similar results, consistent with those of Smriti and Das (2018) that HCE has a positive effect on firms' performance.

Staff Training as moderating variable

This study introduced staff training to determine its moderating effect on intellectual capital and financial performance of firms. Jose Luis Ballesteros & Petra De Saá (2012) defined as systematic acquisition and development of knowledge, skills, and attitude required by employees to adequately perform a task or job or to improve performance in the job environment. Staff training or employee training is an avenue for employee of organization to develop themselves apart from the basic qualification gotten prior to their recruitment. Becker (1962) sees staff or employee training as investment in human capital and associated productivity, wages, and mobility of workers.

The role of staff training in organization cannot be over emphasized, Thang (2009) stressed that the goal of staff training is to improve organizational performance such as increased sales and productivity, enhanced quality and market share. Despite the role of staff training in organiations, some researcher like (Kraiger et al.,2004; Salas, E & Cannon-Bowers, J.A., 2000) have argued that it is capital intensive. Also, Alliger et al.,(1997); Wright and Geroy (2001) argued that there is an increasing skepticism about the practice of staff training and theoretical underpinning of linking training with firm performance.

A number of researchers (Ballot et al,. 2001; Barrett & O'Connell, 2001; Black & Lynch 1996; Boon & van der Eijken, 1998; Faems et al (2005), Zwick, 2006; etc.) have tried to estimate impact of training on productivity, while other researchers studied the effect of training on sales (Ahmad & Schroeder, 2003; Bassi & Van Buren, 1998; Garcia, 2005; Rodriguez & Ventura, 2003; etc.). For instance, while Ballot (2001) found that training has positive effects on productivity (value added per worker), Bassi & Van Buren (1998) have demonstrated that training led to increase on sales, quality, and customer satisfaction. Therefore, in this current dispensation, it is not out of place to examine the moderating effect of staff training on the relationship between human capital and financial performance of listed agricultural firms in Nigeria.

Empirical Review

Ajienka, Edwinah, Olori, Ukoha and Needorn (2022) investigated the relationship between intellectual capital and performance of universities in south-south Nigeria. The study employed a purposive sample of three top ranking Universities in Nigeria; University of Port Harcourt, Rivers State University, and University of Benin. A sample of three-hundred and sixty-one was drawn from the selected population of universities in Nigeria. The study utilized the cross-sectional research design. Data for the study were gotten through structured questionnaire and the data analytical technique employed was the structural equation modeling using the partial-least square estimation. The study found that the dimensions of intellectual capital such as; human capital, structural capital, relational capital and client capital all play significant role in stimulating the performance of universities, especially in terms of discipline referral and teachers satisfaction.

Aluwong (2022) investigates the effect of intellectual capital on performance of non-finance firms in Nigeria on the floor of the Nigerian Exchange Group market. The researcher used return on asset as proxy for financial performance, while structural capital efficiency, capital employed efficiency, human capital efficiency and value-added intellectual capital coefficient was used a measure of intellectual capital. The panel least squares regression was employed to test the hypotheses of the study. Result from the empirical result of this study revealed that human capital efficiency do not significantly affect performance of listed non-finance firms in Nigeria. However, structural capital efficiency, capital employed efficiency and value added intellectual coefficient significantly affect performance of listed non-finance firms in Nigeria.

Xu and Liu (2021) examined the nexus between intellectual capital and financial performance of manufacturing industry in China. The researchers viewed performance as firm profitability, measured through earnings before interest, taxes, depreciation and amortization (EBITDA), net profit margin (NPM), and gross profit margin (GPM), and corporate return, measured through return on investment (ROI), return on assets (ROA), and return on equity (ROE). The study employed both descriptive and inferential statistics to summarize and make inference on the data studied. The researchers found a positive relationship between NPM, GPM,

ROI, ROA, ROE, and IC (measured through the market-to-book ratio).

Olarewaju and Msomi (2021) examined the impact of intellectual capital and financial performance of South African development community's general insurance companies. The study investigated the period of 2008 to 2019. A total of 696 observations were generated from data collected from 56 general insurance companies in 12 years. The researchers used the Value Added Intelligent Coefficient Model to model the data and further used both static (two stage least square, fixed and random effect) and dynamic panel regression analysis (two step system generalised method of moments) to test the hypotheses of the study. They found that there is a significant and direct relationship between lagged return on assets, intellectual capital and financial performance of insurers in the South African Development Community. Furthermore, on the components of intellectual capital, human capital and structural capital have significant and direct relationship with return on assets while capital employed is inversely and insignificantly related with return on assets.

Kasoga (2020) examined the impact of investing in intellectual capital to improve financial performance of firms listed in Tanzania from 2010 to 2019. The study measure financial performance via sales growth, return on asset, asset turn over and Tobins Q. Panel least squares was employed to test the hypotheses of study. From the panel least squares employed, the researcher found that there is a significant positive influence between structural capital efficiency and SG, ROA, ATO, and Tobin's. However, the effect of human capital efficiency and capital employed efficiency on SG, ROA, ATO, and Tobin's had significant and negative relationship.

Soewarno and Tjahjadi (2020) investigated the impact of intellectual capital and financial performance of banking firms in Indonesia. Data observation of 114 was derived from the publicly listed banks on the Indonesia Stock Exchange for the period of 2012 - 2017. The multiple regression analysis is employed to test the hypotheses studied. The researchers found that human capital efficiency have significant effect on asset turn over and price to book value, however, had no impact on return on asset and return on equity. Structural capital efficiency have significant impact on return on asset and return on equity, however, had no impact on turn over and price to book value. Lastly, capital employed efficiency have significant effect on return on asset, return on equity, on turn over and price to book value.

Nzewi, Robert, Ifechi, Monene and Martin (2019) examined the relationship that exists between Intellectual Capital and Competitive Advantage of selected Commercial Banks in Anambra State. The study employed the Survey research design. The population of the study consisted of 100 employees of the selected banks. Data were collected through the use of 5-point Likert scale structured questionnaire. Crombach Alpha reliability test was used to ascertain the level of internal consistency of the instrument. The hypotheses of the study were tested using the Ordinary Least Squares Method (OLS). The result revealed that there is a positive relationship existing between Human Capital and Employee.

Ofurum and Aliyu (2018) examined the relationship between intellectual capital and financial performance of quoted banks in Nigeria. The data of the study were collected from the published annual financial statements of fifteen (15) commercial banks' websites and the Nigeria Stock Exchange as at December 31, 2016. The researchers also adopted and modified Pulic (1998) Value Added Intellectual Coefficient (VAIC) Model which provided measurement for intellectual capital indices (HCEI) in relation to financial performance. The OLS regression was employed to test the hypotheses of the study. The researchers found mixed results as some elements of Intellectual Capital were not significantly related to revenue growth and return on investment. It further depicted that Human Capital Efficiency Index significantly related to return on investment.

Sardo, Serrasqueiro and Alves (2018) examined the relationship between intellectual capital and financial performance of SME hotels in Portugal. Data observation of 934 Portuguese small and medium-sized hotels was used in the study. The study employed the GMM system (1998) estimator, to analyse a dynamic panel data. The findings of the study revealed that intellectual capital components, i.e., human capital, structural capital and relational capital provide a positive impact on hotel financial performance. Furthermore, the results showed that human capital and structural capital are capitalized by the establishment and maintenance of long-term relationships with key stakeholders.

Ozkan, Cakan and Kayacan (2017) analyze the relationship between the intellectual capital performance and financial performance of 44 banks operating in Turkey between 2005 and 2014. The intellectual capital performance of banks was measured through the value added intellectual coefficient (VAIC) methodology. Descriptive and inferential statistics was employed. From the descriptive statistics, the researcher found that

intellectual capital performance of the Turkish banking sector is generally affected by human capital efficiency (HCE). From the regression analysis, they found that that capital employed efficiency (CEE) and human capital efficiency (HCE) positively affect the financial performance of banks. Structural capital efficiency has no impact on financial performance of Turkish banks. However, CEE has more influence on the financial performance of banks compared to HCE.

Fathi, Farahmand and Khorasani (2013) examined the impact of Intellectual Capital on Financial Performance on listed Iranian firms. The study employed a panel data consisting of 49 Iranian companies listed in the Tehran Stock Exchange (TSE), classified in three different industrial sectors observed over the ten-year period of 2001 to 2010. Three proxies were used to measure financial performance – return on equity, return on assets and growth in revenue. Descriptive and inferential statistics was to summarize and make inference on the data of the study. The researchers found that there is significant positive relationship between intellectual capital and value added efficiency of structural capital component with the three financial performance measures (ROE, ROA, GR). Moreover, results indicate that there is significant positive relationship between value added efficiency of capital employed and value added efficiency of human capital with two independent variables (ROE, ROA) and there is no significant relationship between value added efficiency of capital employed and value added efficiency of human capital with growth revenue (GR).

Janosević, Dzenopoljac and (2013) investigated the impact of intellectual capital (IC) and its various components on financial performance of 100 Serbian companies within the real sector. The performance measures used were net profit, operating revenues, operating profit, return on equity (ROE), and return on assets (ROA), whereas IC efficiency was measured using value added intellectual coefficient (VAIC). A multiple-regression model was used to assess the relationship among individual components of VAIC and financial performance. The researchers found that human and structural capital affect ROE and ROA, whereas physical capital influences ROE.

From the empirical literature reviewed it is evident that there is mixed findings in literature on the various components of intellectual capital on financial performance. Secondly, it was observed that there is paucity in literature on the impact of intellectual capital on financial performance of listed agricultural firms in Nigeria. To the best of the researcher's knowledge this area has not been investigated. Also, no study has examined the moderating role of staff training on the impact of intellectual capital on financial performance. Therefore, this gap identified was the motivation of the study.

Theoretical underpinning

The theoretical framework of this study is hinged on the Knowledge base view theory. Knowledge is the life-wire of the financial performance of any organisation such that it is unique, valuable, rare and not easy to replicate as it provides the firm with a capability and competence needed to achieve a competitive advantage via knowledge workers who are embodied in the human capital and structural capital of the firm. Drucker (1999) states that the most important contribution management needs to make in the 21st century are similarly to increase the productivity of knowledge worker. The knowledge-based view of the firm identifies the primary rationale for the firm as the creation and application of knowledge (Demsetz, 1991; Nonaka, 1994; Grant, 1996; Pender, 1996). The transition of society from the industrial era to the knowledge era has shifted the importance from tangible assets to intangible ones. Hall (1992) in a survey of CEOs found that employee know-how and reputation were viewed as the most critical intangible resources for the firm. Therefore, the ability of firms to generate and exploit new forms of knowledge is vitally important (Anand, 2007). The relevance of the theory to this study is that it considers cost of education, training, development and even workers' medical treatment as investments towards improved productivity of individual workers and also creates a sort of competitive advantage which ultimately results in improved organizations financial performance. Thus, if these are investments like other physical assets which are reflected on the statement of financial position, considerable effort must also be made to reflect such value of knowledge in human capital on the statement of financial position.

Methodology

To achieve the objective of the study, a total of thirteen listed agricultural firms were sampled in the study from the period of 2015 to 2022. These periods have not been investigated in prior studies. The cross sectional research design was adopted, and the ordinary least squares was used to test the hypotheses of the study.

Measurement of Variables

Table 3.1: Measurement of variables

Variable	Proxy	Measurement
Financial Performance (Dependent)	Return on Asset	Operating Profit / Total Asset
Intellectual Capital (Independent)	Human Capital Efficiency (HCE)	Value Added / Human Capital Where; Value Added = Net Sales – Total Expenses Human Capital = Employee Cost
	Structural Capital Efficiency (SCE)	Structural Capital/Value Added Where; Structural Capital = Value Added – Human Capital
	Capital Employed Efficiency CEE)	Value Added / Capital Employed Where; Value Added = Net Sales –Total Expenses Capital Employed = Total Assets – Intangible Asset
Staff Training (Moderating)	Staff Training Cost	Staff Training Cost/Total Asset

Source: Author's Compilation, 2023

Model Specification

This study will adapt the model of Soewarno and Tjahjadi (2020) used in their study in examining intellectual capital and financial performance of banking firms in Indonesia. Their model was stated as;

In functional form;
Financial Performance = f(Intellectual Capital)………………………………… …………………………(1)

ROA = f(Human capital efficiency, Structural capital efficiency; Capital employed efficiency…………..(2)

In econometric form;
$ROA_{it} = \beta 0 + \beta_1 HCE_{it} + \beta_2 SCE_{it} + \beta_3 CEE_{it} + \varepsilon_{it}$

Where;
ROA = Financial performance;
HEC = Human Capital Efficiency;
SCE = Structural Capital Efficiency;

In this study, a moderating variable was added. Staff training will be used used to moderate the relationship between intellectual capital and financial performance. Therefore the model of the study will be specified as thus;

In functional form;
Financial Performance = f(Intellectual Capital*Staff Training)………………… …………..………………(3)

ROA = f(Human capital efficiency, Structural capital efficiency; Capital employed efficiency; Staff training)..(4)

In econometric form;
$ROA_{it} = \beta_0 + \beta_1 HCE_{it*}\beta_4 STF + \beta_2 SCE_{it*}\beta_4 STF + \beta_3 CEE_{it*}\beta_4 STF + \varepsilon_{it}$

Where;
ROA = Financial performance;
HEC = Human Capital Efficiency;
SCE = Structural Capital Efficiency;
STF = Staff Training
E = Error term
i—Cross Section
t ----Time series

Data Presentation and Interpretation

The study employed both descriptive and inferential statistics.

Descriptive Statistics

The descriptive statistics were employed to summarize the data used in the study. It includes the mean, minimum, maximum, standard deviation, skewness and Kurtosis.

Table 2: Descriptive statistics

Variables	Mean	Minimum	Maximum	Std. Dev	Skewness	Kurtosis
ROA	0.087	-0.958	6.866	0.038	3.771	2.767
HCE	0.689	-35.878	41.609	5.867	-0.320	3.504
SCE	0.675	-12.876	17.755	1.889	-0.644	2.061
CEE	-0.044	-16.877	14.872	1.543	0.006	3.076
STF	16.765	7.834	23.987	5987	0.176	2.706

Source: Author's Computation, 2023

Table 2 shows the descriptive statistics of the data used in the study. The dependent variable – ROA had mean of 0.087, with a minimum value of -0.958 and a maximum value of 6.866. Also the standard deviation failed to exhibit a considerable clustering around the mean. The independent variables – HCE, SCE and CEE had means of 0.689, 0.675 and -0.044, respectively. Also, the standard deviation of the independent variables failed to exhibit a considerable clustering around the mean. The moderating variable introduced – STF, had a mean of 16.765, with a minimum value of 7.834 and a maximum value of 23.987. However, the standard deviation exhibited a considerable clustering around the mean. The skewness and kurtosis vale for all variable were with the range of (-3 to +3). This implies that the data of the study do not veer away from the normality curve. Hence, the data of the study is normally distributed.

Table 3: Correlation Matrix

Correlation Probability	ROA	HCE	SCE	CEE	STF
ROA	1.000000				
HCE	-0.100531	1.000000			
SCE	-0.018805	-0.139046	1.000000		
CEE	-0.110997	0.234078	0.120046	1.000000	
STF	0.136211	0.145959	-0.337355	-0.130413	1.000000

Source: Author's Computation, 2023

Table 3 show the correlation analysis of the variables used in the study. The relationship between a variable and itself was 1. This is seen in the association between variables. Also the variable exhibited both positive and negative association. For example, the association between HCE and ROA was -0.100531, the association between SCE and ROA was -0.018805; the association between STF and ROA was 0.136211. The strength of the association of the variables of the study was below the recommended threshold of 0.8 (Studenmund, 2000). This indicates that there is absence of multicollinearity in the predicator varriables.

Table 4: Ordinary least squares regression

'Variable'	'Coefficient'	'Std. Error'	t-Statistic	Prob.
C	0.021434	0.067082	1.817316	0.8775
HCE*STF	0.586368	0.134984	4.343983	0.0145
SCE*STF	4.254704	1.094567	3.887112	0.0184
CCE*STF	5.015273	1.000343	5.013553	0.0024
'R-squared'	0.850826			
'Adjusted R-squared'	0.708703			
'S.E. of regression'	0.291335			
F-statistic	39.352952			
Prob(F-statistic)	0.010198			

Source: Authors' computation, 2023

The result in table 4 shows that model is statistically fit and correct. F-statistic = 39.352952, p = 0.010198. The result evidenced in the analysis revealed that staff training has a positive and significant impact on the relationship between intellectual capital and financial performance of listed agricultural firms in Nigeria. This result is in agreement with the theoretical stance of Knowledge base view theory, that staff training has a moderating effect on the nexus between intellectual capital and financial performance of listed agricultural firm in Nigeria.

Conclusion and Recommendations

The thrust of the study was to examine the moderating effect of staff training on the nexus between intellectual capital and financial performance of listed agricultural firms in Nigeria. The study found that staff training has positive impact on the various measures of intellectual capital employed in the study. Based on the findings on this study, the researcher recommended that regular staff training should be done in work place to improve financial performance.

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